

REMARKS

The Applicants appreciate the Examiner's thorough examination of the subject application and the indication that 13 and 27 would be allowable if rewritten in independent format. Applicants request reconsideration of the subject application based on the following remarks.

Claims 1-5, 18-19, 22-26, and 28-29 are pending in the application. Claims 1-5, 18-19, 22, and 25 have been amended and new claims 28 and 29 have been added. Support for the amendments to the claims can be found throughout the specification.

More particularly, support for the amendments to claims 1 and 18 may be found in the specification at pages 7, 9-10, and 16, in Figure 3 and in general formula (II) and (III) of the application as filed. General formula (IV) recited in claims 1 and 18 is supported by formula (II) and (III) together with the pyrrole-imidazole octamide described in figure 3 and reference in the specification to compounds preferably having from 2 to 30 imidazole and pyrrole residues.

No new matter has been introduced into the application by the instant amendments.

Claims 1, 6, and 11-12 were rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Asai et al (*J. Am. Chem. Soc.* 1994 v. 116, 4171-4177).

Claims 18-19 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentably over Asai et al (*J. Am. Chem. Soc.* 1994 v. 116, 4171-4177).

Claims 2-5 and 22-26 were rejected under 35 U.S.C. §103(a) as being allegedly unpatentably over Asai et al (*J. Am. Chem. Soc.* 1994 v. 116, 4171-4177) and further in view of Wang et al (U.S. Patent 5,843, 937).

Each of the rejections is traversed.

For the sake of brevity, the three § 102 and § 103 rejections are addressed in combination. Such a combined response is considered appropriate because *inter alia* each of the rejections relies on the Asai academic publication as the sole or primary citation.

The present invention provides a method for detecting an effect of the chemical species to a substance containing DNA or RNA, by using the chemical species comprising a pyrrole/imidazole polyamide derivative domain which is capable of binding to specific DNA or RNA sequences. Moreover, the instant invention provides screening methods for the rapid identification of compounds suitable for treatment of a specified indication and/or compounds capable of interacting with specified cells.

The chemical compounds comprising a pyrrole-imidazole polyamide domain can be used as a mixture of two or more kinds of chemical species. That is, the inventors have surprisingly discovered that the compounds of the invention bind to specific sequences of DNA through a homodimer formation or a heterodimer formation. The compounds of the invention comprising a pyrrole-imidazole polyamide domain bind to specific DNA sequences based on the sequence of pyrrole and imidazole groups in the pyrrole-imidazole polyamide domain. Thus, the domain methyl pyrrole-methyl imidazole (Py-Im) recognizes a C-G base pair of DNA. A G-C base pair is recognized by Im-Py and an A-T or a T-A dNA base pair is recognized by Py-Py. Thus by variation of the length and ordering of methyl imidazole and methyl pyrrole residues in the pyrrole-imidazole polyamide domain, a variety of DNA sequences can be recognized by the compounds of the invention.

In contrast, the compounds recited by Asai do not contain a pyrrole-imidazole polyamide domain. Moreover as the document is understood, Asai teaches compounds comprising duocarmycin linked through a carbonyl group to a bicyclic heteroaromatic group.

As the document is understood, Wang merely recites a variety of DNA alkylating agents which are useful for anti-tumor applications and a multi-well plate containing same.

Wang fails to overcome the structural limitations of the Asai compounds. That is, no combination of Asai and Wang teach or suggest compounds comprising duocarmycin linked to a polyamide domain comprising a plurality of pyrrole and/or imidazole residues. Moreover, no combination of Asai and Wang teach or suggest screening methods for identifying the interaction of a compound of Formula IV with a material comprising DNA and/or RNA or more particularly identifying the interaction of a compound of Formula IV with a specified DNA or RNA sequence by varying the sequence and length of the pyrrole and imidazole residues in the polyamide domain.

Thus claims 1 and 18 are patentable over Asai or any combination of Asai and Wang. Claims 2-4, 19, 22-26, and 28-29 depend from either claim 1 or 18 and are therefore also patentable over Asai or any combination of Asai and Wang.


Applicants request withdrawal of the rejections and reconsideration of the application.

Although it is not believed that any additional fees are needed to consider this submission, the Examiner is hereby authorized to charge our deposit account no. 04-1105 should any fee be deemed necessary.

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Respectfully submitted,

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